



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,139	02/17/2004	Henry Bertoni	Poly-31	2250

26479 7590 11/02/2005

STRAUB & POKOTYLO  
620 TINTON AVENUE  
BLDG. B, 2ND FLOOR  
TINTON FALLS, NJ 07724

EXAMINER
----------

MULL, FRED H

ART UNIT	PAPER NUMBER
----------	--------------

3662

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/780,139

Applicant(s)

BERTONI ET AL.

Examiner

Fred H. Mull

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) is/are allowed.
- 6) ☒ Claim(s) 1-25 and 42-55 is/are rejected.
- 7) ☒ Claim(s) 26-41 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments on p. 16-17, with respect to the rejection(s) over 35 USC 112 2<sup>nd</sup> paragraph have been fully considered and are persuasive. The rejection(s) of these claims have been withdrawn.

2. Applicant's arguments on p. 17-19 and 22-23, with respect to the rejection(s) over Holt have been fully considered but they are not persuasive.

Applicant argues that Holt does not determine location using at least two trace-back rays using solely the direction of arrival of signals and topographical information (p. 18, 4<sup>th</sup> ¶). However, Holt does disclose determining a location using solely direction of arrival information and topographical information:

"... the system could calculate three estimates of the location using the receive site Time of Arrival and Angle of Arrival. For example, the following three calculations could be used:

- 1) the Angle of Arrival of receive site 1 and the Angle of Arrival of receive site 2;
- 2) the Angle of Arrival from receive site 1 and the Time Difference of Arrival of receive site 2 minus receive site 2; and
- 3) the Angle of Arrival for receive site 2 and Time Difference of Arrival for receive site 1 minus receive site 2." (¶74, emphasis added).

where one location 1 is determined using direction of arrival without the use of TDOA information. The fact that Holt goes on to combine location 1 with locations 2

Art Unit: 3662

and 3 in a weighted combination does not negate the step of determining a location using solely direction of arrival information and topographical information.

3. Applicant's arguments on p. 19-20 and 23-25, with respect to the rejection(s) over Wang have been fully considered and are persuasive. The rejection(s) of these claims have been withdrawn.

4. Applicant's arguments on p. 20-21 and 23, with respect to the rejection(s) over Thomas have been fully considered and are persuasive. The rejection(s) of these claims have been withdrawn.

5. Applicant's arguments on p. 23-24, with respect to the rejection(s) over any of Holt, Wang, and Thomas in further view of Tweg have been fully considered and are persuasive. The rejection(s) of these claims have been withdrawn.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6 0. Claims 1-12, 14, 16-25, 42-44, 46, and 48-55 rejected under 35 U.S.C. 102(b) as being anticipated by Holt.

In regard to claims 1-10, 16-25, 42-43, and 48-53, Holt discloses:

accepting at an observation point (Rx<sub>1</sub>, Fig. 6), signals emanating from the object

(64);

determining, for each of the accepted signals, a direction of arrival (§74, location estimate 1);

determining at least two trace-back rays from the observation point using solely the direction of arrival of signals and topographical information (§70-74);

determining at least one candidate location at crossings of two or more trace-back rays (§74).

In regard to claims 54-55, Holt further discloses determining a set of final candidate locations from the determined candidate locations; and determining the location of the object of interest using the set of final candidate locations (§74).

In regard to claim 11, Holt further discloses using all of an associated TOA, and amplitude, and a DOA (§ 49).

In regard to claims 12, 14, 44, and 46, Holt further discloses the topographical information including sources of signal reflection and building surfaces (§ 70-72).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 7 2. Claims 13, 15, 45, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holt in view of either one of Katsriku and Jenn.

Holt discloses the topographical information including sources of signal reflection and refraction (§§ 70-72). Holt fails to disclose diffraction and attenuation. However, it is well known that electromagnetic signals are affected by the processes of diffraction and attenuation as well as reflection and refraction.

Katsriku discloses that electromagnetic signals for use in wireless communication are affected by attenuation, reflection, diffraction, refraction, scattering, etc. (p. 2-4).

Jenn discloses that electromagnetic signals for use in wireless communication are affected by reflection, refraction, diffraction, attenuation, scattering, and depolarization (Overview of Electromagnetic Wave Propagation, p. 1).

It would have been obvious to include all the electromagnetic effects that affect wireless communication signals in order to calculate an accurate emitter source location.

#### ***Allowable Subject Matter***

- § 8. Claim(s) 26-41 is/are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

- ¶ 4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 3662

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred H. Mull whose telephone number is 571-272-6975. The examiner can normally be reached on M-F 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred H. Mull

Application/Control Number: 10/780,139  
Art Unit: 3662

Page 7

Examiner  
Art Unit 3662

fhm

A handwritten signature in black ink, appearing to read "Thomas H. Tarcza". The signature is fluid and cursive, with the first name "Thomas" and last name "Tarcza" clearly distinguishable.

THOMAS H. TARCZA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600